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(56) Documents cited

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(58) Field of search

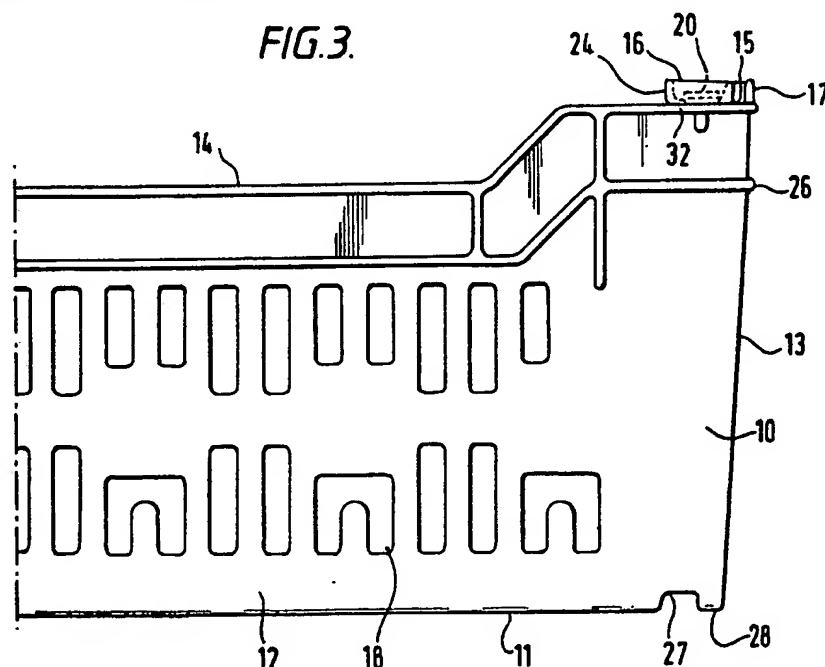
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**(54) Nestable/stackable containers**

(57) A nestable/stackable container includes bale arms 16 at each end such that with the bale arms 16 pivoted outwardly such containers can be nested and with the bale arms 16 pivoted inwardly and supported by the body of the container such containers can be stacked.

Locating means are provided for each bale arm 16 in the form of upwardly facing projections 20 adjacent the container edges 15 arranged to interengage by means of a snap action with apertures defined in the bale arms 16. Accidental pivoting of the bale arms 16 is thus inhibited.

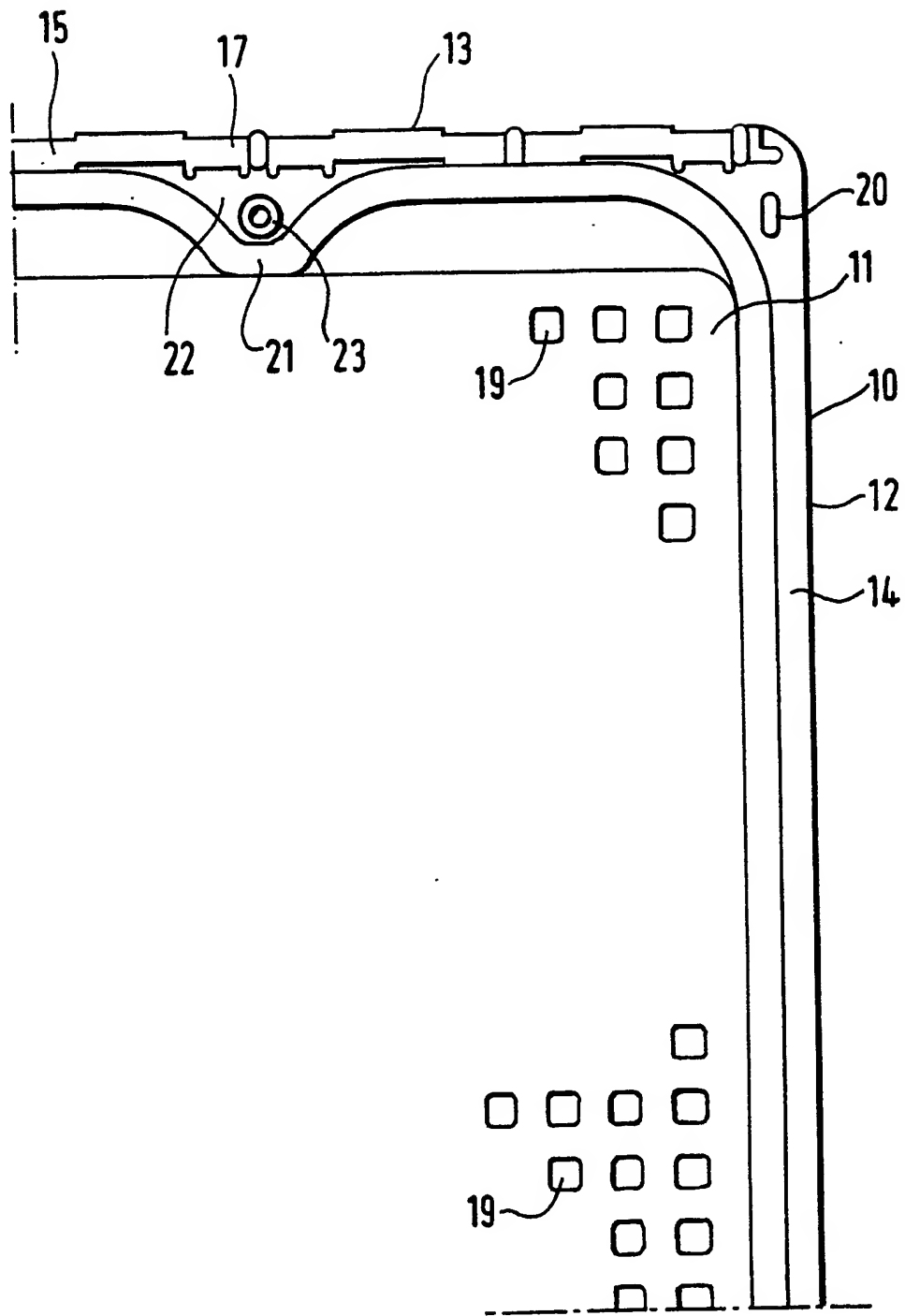


At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1982.

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*FIG. 1.*

The invention relates to a container and in particular to a container which may be stacked or nested.

A known container of this type is disclosed in United Kingdom Registered Design No:1032812. The container disclosed is an open topped crate comprising a base and four substantially rectangularly arranged side walls and including a pair of pivotal members mounted by hinges on the upper edges of opposite end walls of the crate. The pivotal members are pivotal into a stacking position such that they lie inboard of the crate edges and provide a barrier to nesting of a further crate within the crate and at the same time provide means on which a further crate can be supported so that such crates can be stacked. In the stacking position, a pivotal member presents four downwardly facing flat parts which engage four upwardly facing flat surfaces, two of which are provided on parts of the crate which project inwardly from the end wall on which the pivotal member is mounted and the other two of which are constituted by the upper edges of the two side walls of the crate perpendicular to the end wall, on which the pivotal member is mounted.

A pivotal member in the stacking position also presents an upwardly facing trough into which corresponding downwardly facing transverse ridges on the base of a further crate can be located.

In use, it is possible for one or both of the pivotal members to be pivotted out of the stacking position unintentionally by the action of unstacking a crate e.g. the downwardly facing transverse ridges on the base of an upper crate may engage the wall of a pivotal member trough on the crate below as the upper crate is removed and "flick" it out of the stacking position. If a crate is then put on top of the lower crate it will drop down inside the crate at one or both ends and may damage the contents of the lower crate.



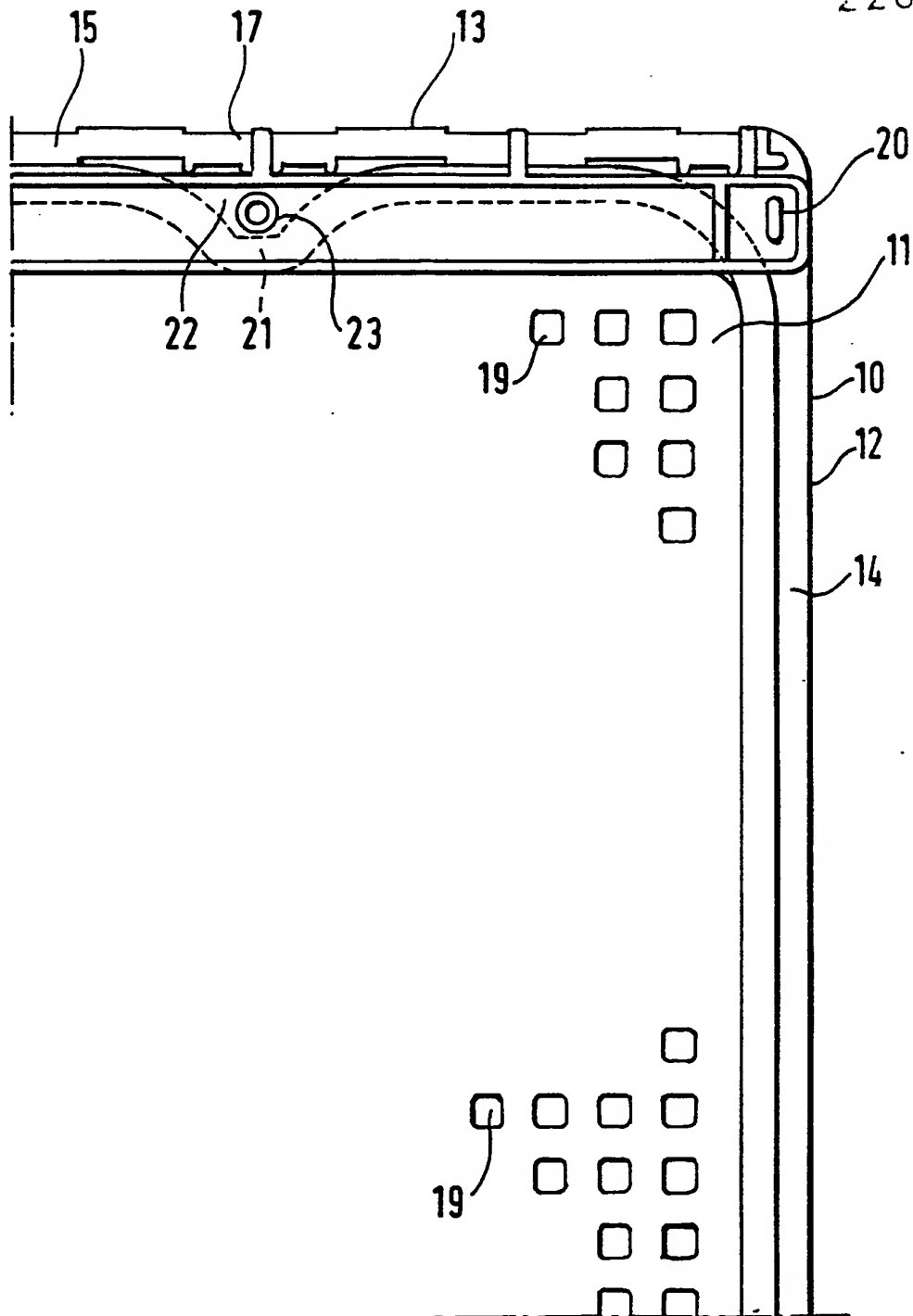


FIG. 2.

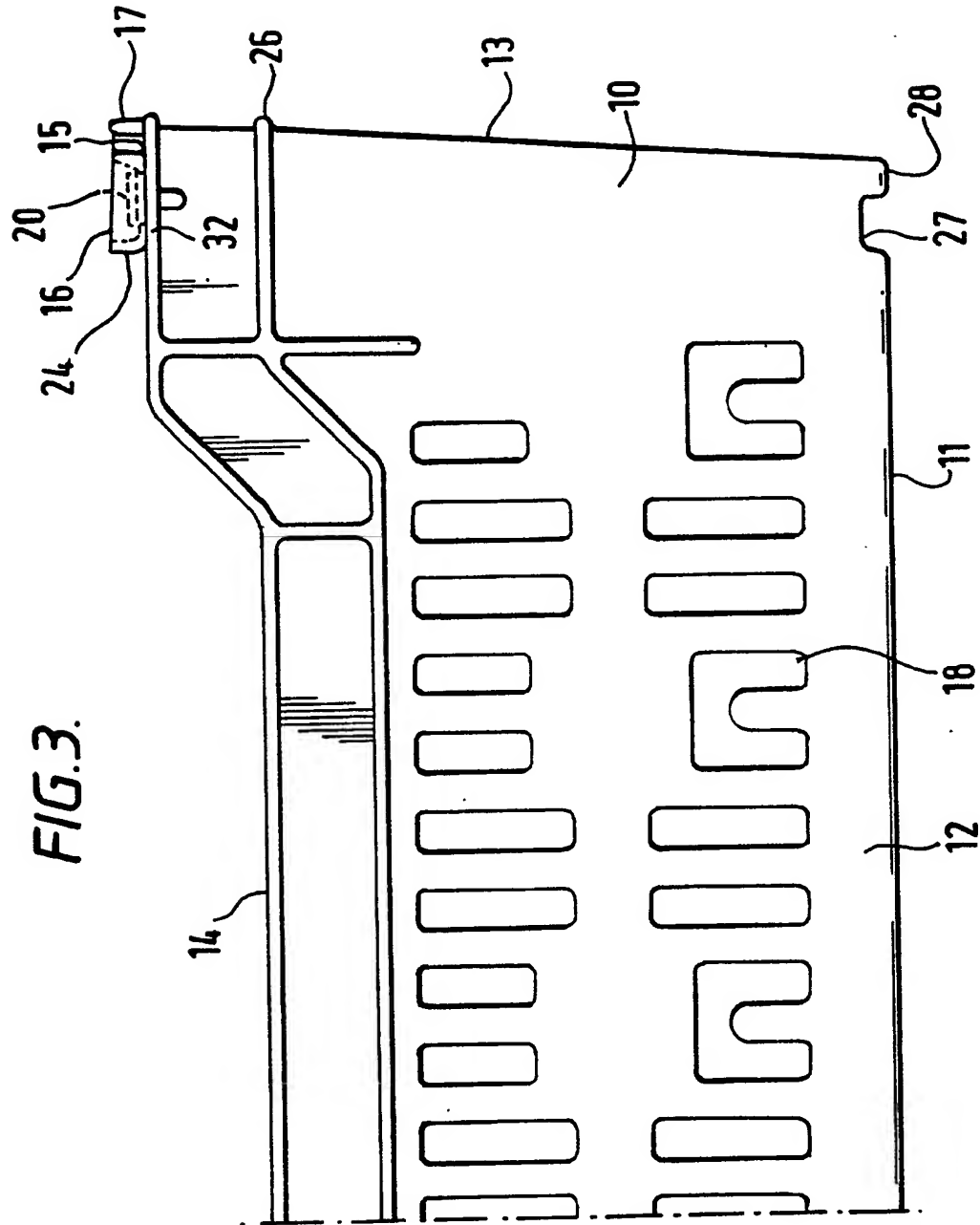
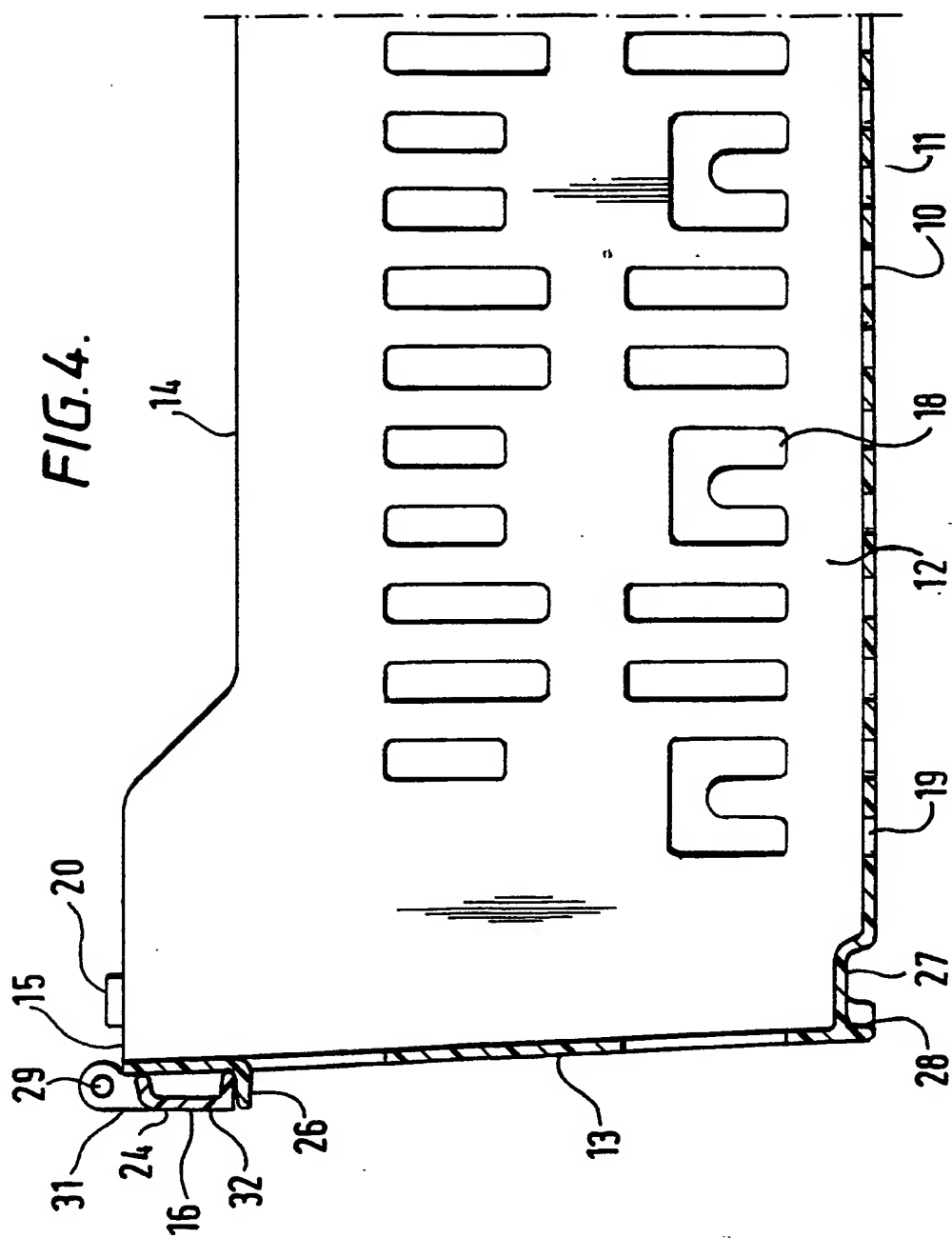


FIG. 4.



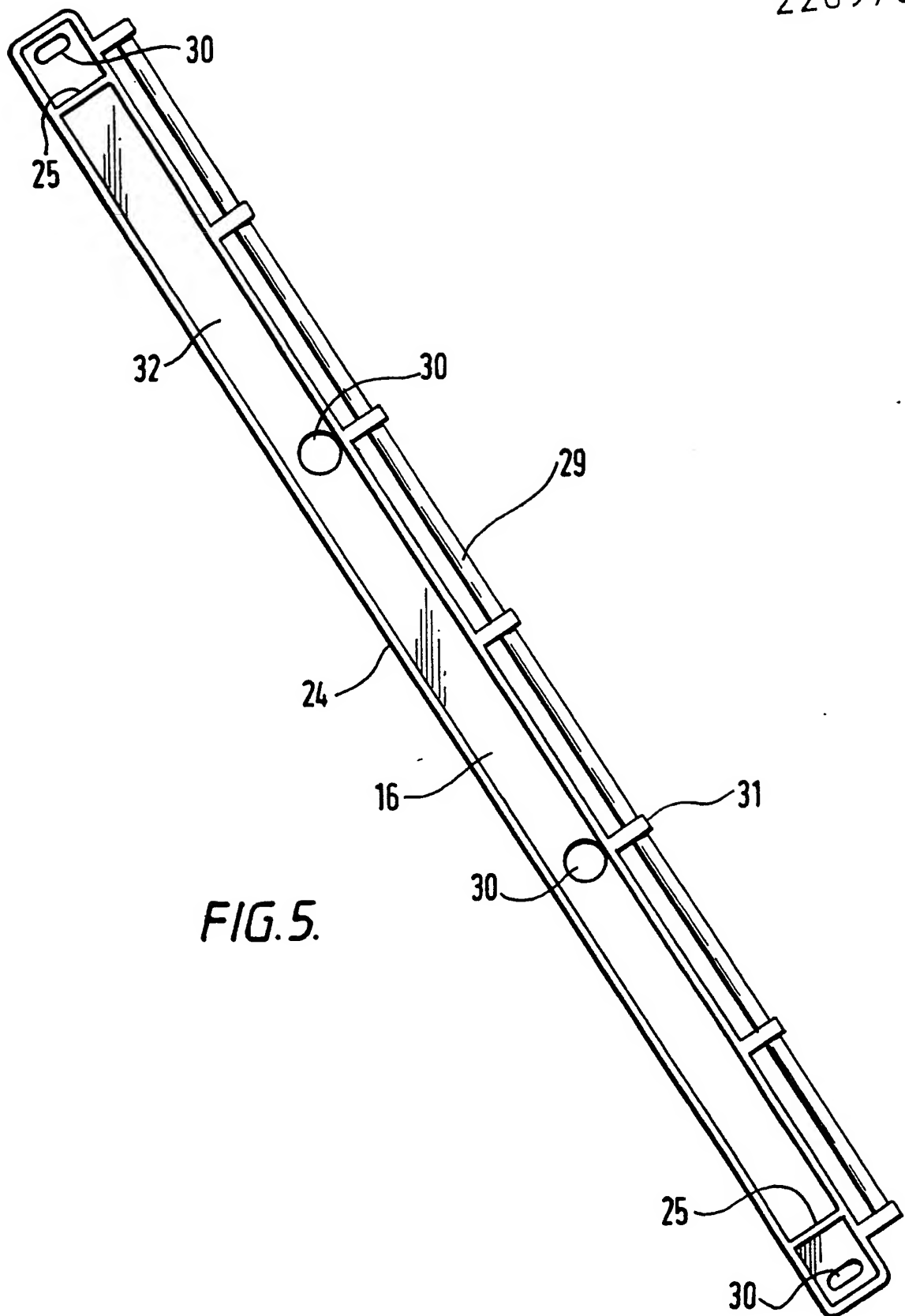


FIG. 5.



The invention relates to a container and in particular to a container which may be stacked or nested.

A known container of this type is disclosed in United Kingdom Registered Design No:1032812. The container disclosed is an open topped crate comprising a base and four substantially rectangularly arranged side walls and including a pair of pivotal members mounted by hinges on the upper edges of opposite end walls of the crate. The pivotal members are pivotal into a stacking position such that they lie inboard of the crate edges and provide a barrier to nesting of a further crate within the crate and at the same time provide means on which a further crate can be supported so that such crates can be stacked. In the stacking position, a pivotal member presents four downwardly facing flat parts which engage four upwardly facing flat surfaces, two of which are provided on parts of the crate which project inwardly from the end wall on which the pivotal member is mounted and the other two of which are constituted by the upper edges of the two side walls of the crate perpendicular to the end wall on which the pivotal member is mounted. A pivotal member in the stacking position also presents an upwardly facing trough into which corresponding downwardly facing transverse ridges on the base of a further crate can be located.

In use, it is possible for one or both of the pivotal members to be pivotted out of the stacking position unintentionally by the action of unstacking a crate e.g. the downwardly facing transverse ridges on the base of an upper crate may engage the wall of a pivotal member trough on the crate below as the upper crate is removed and "flick" it out of the stacking position. If a crate is then put on top of the lower crate it will drop down inside the crate at one or both ends and may damage the contents of the lower crate.

According to the invention there is provided a container including an upwardly facing opening defined by a plurality of container edges, and a pair of pivotal members mounted adjacent opposite container edges, the pivotal members being pivotal into a nesting position, in which a further similar container can be nested into the opening of the container, and the pivotal members being pivotal into a stacking position, in which a further similar container cannot be nested into the container, but can be stacked on top of the container being supported by the pivotal members, wherein at least one locating means is provided, the or each locating means being arranged to releasably secure the respective pivotal member in the stacking position.

Thus the locating means will ensure that the respective pivotal member is not inadvertently moved out of the stacking position with the resultant possibility of damage to the contents of the container if it is attempted to stack a further container on top of the first container.

The or each locating means is preferably arranged to releasably secure the respective pivotal member

in the stacking position by means of a snap action interengagement.

Thus, a pivotal member may be snapped into the stacking position and the locating means will resist movement of the pivotal member out of the stacking position.

The or each locating means may comprise at least one location projection arranged to interengage with a corresponding interengagement part with a snap action thereby to releasably secure the respective pivotal member in the stacking position.

The or at least one projection of the or each locating means may be provided in a position corresponding to a central region of the respective pivotal member. The or each location projection provided in a position corresponding to a central region of the respective pivotal member is preferably cylindrical. Preferably, two said cylindrical location projections are provided.

The or at least one location projection of the or each locating means may be provided in a position corresponding to an end region of the respective

pivotal member. Preferably, the or each location projection provided in a position corresponding to an end region of the respective pivotal member is elongate in the transverse direction of the respective pivotal member. Preferably, two said elongate projections are provided in positions corresponding to opposite end regions of the respective pivotal member.

The or each locating means preferably includes two cylindrical location projections provided in positions corresponding to central regions of the respective pivotal member and two location projections provided in positions corresponding to opposite end regions of the respective pivotal member and being elongate in the transverse direction of the respective pivotal member.

The or each location projection may be provided on the respective pivotal member or on the body of the container, but preferably the or each location projection is provided on the body of the container.

Preferably, the or each interengagement part defines an aperture or recess.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings in which:

- Fig.1. is a top plan view of a part of the embodiment with the pivotal member pivoted out of the stacking position;
- Fig.2. is the view of Fig.1. but with the pivotal member in the stacking position;
- Fig.3. is a side elevational view of a part of the embodiment with the pivotal member in the stacking position and a projection shown in phantom;
- Fig.4. is a side elevational view in cross-section of one end of the embodiment with the pivotal member pivoted out of the stacking position; and
- Fig.5. is a plan view of a pivotal member of the embodiment alone.

A rectangular container or crate 10 comprises a base 11, two side walls 12 and two end walls 13. The side walls 12 terminate upwardly in side edges 14, and the end walls 13 terminate upwardly in end edges 15.

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The side walls 12 and end walls 13 of the container 10 diverge upwardly so that the container can nest with other containers.

Two pivotal members 16 are pivotally mounted on opposite end edges 15 by hinges 17. The side walls 12 and end walls 13 of the container 10 include a plurality of rectangular apertures 18. The base 11 includes a plurality of square apertures 19. At each end of each side edge 14 is provided a location projection 20 which is elongate \_\_\_\_\_ in the transverse direction of the adjacent end edge 15. Each end wall 13 includes a pair upwardly projecting, substantially vertically disposed ridges 21 which extend from the base 11, to the end edge 15 and which are inwardly spaced from the longitudinal ends of the end wall 13. These provide the container 10 with additional rigidity and act as guides for the nesting of a further container into the container 10. The upper surface 22 of each ridge 21 is provided with a hollow cylindrical upwardly facing location projection 23. Each pivotal member \_\_\_\_\_ 16, as shown in figure 4, has apertures 30 corresponding to the cylindrical and elongate projections 20, 23, adjacent the end wall 13 on which it is mounted. Each pivotal member 16 comprises an elongate main body part 32 and a circular cross-section rod 29 which extends parallel to the main body part 32 and is supported on a plurality of laterally extending support parts 31. Each pivotal member has a flange 24 around the perimeter of its main body part 32 which extends perpendicularly from the part 32 on one side. A transverse strengthening ridge 25 is provided in the region of each longitudinal end. The container 10 comprises a transversely extending recess 27 in the base 11 adjacent each end wall 13.

The recesses 27 together with the ridges 21 provide a region at each end of the base which has three elongate projections 28 which are longitudinally aligned in the transverse direction of the container 10.

In use, each pivotal member 16 may hang downwards from its hinge 17 as shown in figure 3. In this position it lies just above a horizontal ridge 26 which extends substantially perpendicularly from each end wall 13. When both pivotal members are in this position, a further container can be nested into the container 10. In order to be able to stack a further container onto container 10, the pivotal members are pivoted about their hinges 17 into a horizontal position in which they engage the ridge upper surface 22 and the longitudinal ends of the side edges 14 and receive with a snap action in their apertures 30 their respective two elongate projections 20 and two cylindrical projections 23, as shown in figure 2, in which an elongate projection 20 is shown in phantom. Each pivotal member 16 now lies inboard of the container edges 14, 15 and acts as a barrier to nesting, at the same time providing a supporting ledge for supporting a further container. The aligned projections 28 of a further container 10, can now be located within the pivotal member flanges 24, between the strengthening ridges 25.

A further container may thus be securely stacked on the container 10 with its aligned projections located on the two pivotal members 16 of the container 10. The snap action inter-engagement of the pivotal members 16 with their respective cylindrical and elongate projections 20, 23 on the container 10, will ensure that the removal of the upper crate will not lead to either of the pivotal members being moved out of the stacking position. The pivotal members 16 and/or the remainder of the container 10, may be made from plastics.

The hinge 17 need not be as shown, but may be of any suitable type.

The cylindrical projections 23 need not be provided on ridges 21 which extend from the base 11 to the end edge 15, but may be provided on suitably arranged inwards projections from the end wall 13 of any appropriate shape.



# CLAIMS

1. A container including an upwardly facing opening defined by a plurality of container edges and a pair of pivotal members mounted adjacent opposite container edges, the pivotal members being pivotal into a nesting position, in which a further similar container can be nested into the opening of the container, and the pivotal members being pivotal into a stacking position, in which a further similar container cannot be nested into the container, but can be stacked on top of the container being supported by the pivotal members, wherein at least one locating means is provided, the or each locating means being arranged to releasably secure the respective pivotal member in the stacking position.

2. A container as claimed in claim 1, wherein the or each locating means is arranged to releasably secure the respective pivotal member in the stacking position by means of a snap action interengagement.

3. A container as claimed in claim 2, wherein the or each locating means comprises at least one

location projection arranged to interengage with a corresponding interengagement part with a snap action thereby to releasably secure the respective pivotal member in the stacking position.

4. A container as claimed in claim 3, wherein the or at least one location projection of the or each locating means is provided in a position corresponding to a central region of the respective pivotal member.

5. A container as claimed in claim 4, wherein the or each location projection provided in a position corresponding to a central region of the respective pivotal member is cylindrical.

6. A container as claimed in claim 5, wherein two said cylindrical location projections are provided.

7. A container as claimed in claim 3, wherein the or at least one location projection of the or each locating means is provided in a position corresponding to an end region of the respective pivotal member.

8. A container as claimed in claim 7, wherein the or each location projection provided in a position corresponding to an end region of the respective pivotal member is elongate in the transverse direction of the respective pivotal member.

9. A container as claimed in claim 8, wherein two said elongate projections are provided in positions corresponding to opposite end regions of the respective pivotal member.

10. A container as claimed in claim 3, wherein the or each locating means includes two cylindrical location projections provided in positions corresponding to central regions of the respective pivotal member and two location projections provided in positions corresponding to opposite end regions of the respective pivotal member and being elongate in the transverse direction of the respective pivotal member.

11. A container as claimed in any of claims 3 to 10, wherein the or each location projection is provided on the body of the container.

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12. A container as claimed in any of claims 3 to 11, wherein the or each interengagement part defines an aperture or recess.

13. A container substantially as hereinbefore described with reference to the accompanying drawings.

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